Massachusetts is Cleaner & Safer

Report on the Toxics Use Reduction Program

- 30% Less Toxic Waste
- 20% Less Toxic Chemical Usage

The Massachusetts Toxics Use Reduction Program

Opening Statement from the Secretary of Environmental Affairs

Fellow Massachusetts Citizens:

Massachusetts is cleaner and safer today than it was a generation ago. Many of our laws and several of our government agencies have contributed to these improvements. But some of the most important progress has been made by government and industry working together to implement the goals of an innovative program established by the state legislature less than a decade ago.

In 1989, the Commonwealth of Massachusetts enacted the Toxics Use Reduction Act. This law established the Commonwealth as a leader in environmental and public health policy by declaring that our first priority would be to prevent pollution at the source. Over the past six years hundreds of industry professionals, and scores of government and university staff have worked to implement this innovative program and meet its legislated goals. This report offers a brief summary of the work and progress to date.

The Toxics Use Reduction Act was passed unanimously by the state legislature based on a strong spirit of cooperation among environmental groups, law makers and industry. As we move into the future of environmental policy in Massachusetts, building on the successes of the Toxics Use Reduction Program will help us keep that spirit alive.

Trudy Coxe
Secretary of Environmental Affairs

Toxics Use Reduction

Toxics Use Reduction (TUR) is a specific form of pollution prevention that focuses on reducing the use of toxic chemicals or the generation of hazardous wastes by improving and redesigning the products and processes of industrial production. Firms may choose to re-formulate products, re-design production processes, substitute more benign chemicals for known toxic chemicals, upgrade and improve production equipment, tighten up operations and maintenance, or recycle and reuse materials in production processes.

The 1989 Toxics Use Reduction Act (TURA), set six goals for the state. These include:

- Cutting the generation of toxic wastes by 50% by 1997 through toxics use reduction
- Establishing toxics use reduction as the preferred means for achieving compliance with federal and state environmental statutes
- Sustaining and promoting the competitiveness of Massachusetts businesses
- Promoting reduction in the production and use of toxic chemicals
- Enhancing and strengthening the enforcement of existing environmental laws
- Promoting coordination between state agencies administering toxics-related programs

TURA established new responsibilities for firms as well as state agencies. Each year Massachusetts firms that use in excess of a certain amount of any of a list of toxic and hazardous chemicals must report on their use of those chemicals and pay a fee to the state. The data from these reports is compiled by the state in an annual report that is then released to the public. In 1994, the firms that reported on the use of these toxic chemicals were required to prepare a plan on how they would reduce or eliminate the use of those chemicals in their processes. Firms were not required to implement the plans or reveal them to the public, but every two years the plans must be reviewed and updated. The plans and the updates must be certified by a specially trained and licensed professional called a Toxics Use Reduction Planner. There is a plan summary that is submitted to the state each year noting the progress that a firm is making in achieving the goals in its plan.

The fees that the state collects each year are used to fund four special programs established to implement the toxics use reduction program.

The Office of Technical Assistance provides TUR workshops and forums as well as non-regulatory, confidential technical advice to firms seeking to implement toxics use reduction programs.

The Toxics Use Reduction Institute at the University of Massachusetts Lowell provides education and training, research on new materials and processes, a technical library and information source and special laboratories for testing surface cleaning technologies.

The Department of Environmental Protection (DEP) administers TUR reporting, provides multi-media enforcement and compliance services, coordinates agency toxics activities with the federal Environmental Protection Agency, manages TURA program data and licenses TUR planners.

The Administrative Council on Toxics Use Reduction — made up of directors of state agencies — along with the Advisory Board — made up of representatives of various interest groups — serve as the coordinating and policy setting body.

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Six Years of Progress in Toxics Use Reduction

This data, compiled from the annual reports, reveals the significant progress that has been made in meeting the state's goal. The data documents that over six years the firms:

- **generated 21 million pounds, or 30% less toxic waste;**
- **used 72 million pounds or 20% less toxic chemicals.**

According to DEP data, 943 Massachusetts firms have participated in the Toxics Use Reduction Program. Some 450 of these firms have dropped out of the program for a variety of reasons, but most often because they have reduced or eliminated the use of any of the listed toxic chemicals. By 1996 firms had reported on six years from: 1990-1995. *This data, compiled from the annual reports, reveals the significant progress that has been made in meeting the state's goal. For example, the data reveals that over six years the firms:*

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***percentages are normalized for changes in production**

In 1994, 580 facilities prepared plans and in 1996 470 facilities reported that they had updated their plans. This past year a survey was conducted of the firms to discern the effects of the reporting and planning. The survey results show a broad positive attitude towards the planning requirements and a large commitment to implementing their plans.

Following are some examples of information that can be extracted from TURA data. Trade secret information is excluded from all data reported here. These examples do not offer analysis or conclusions, but simply provide a snapshot of what is happening in Massachusetts.

What are the top five toxic chemicals *used* in Massachusetts? (ranked by total use)

1) Styrene Monomer
2) Copper
3) Sodium Hydroxide
4) Hydrochloric Acid
5) Sulfuric Acid

What are the top five toxic chemicals *generated as byproduct* in Massachusetts?

1) Sodium Hydroxide
2) Toluene
3) Sulfuric Acid
4) Methyl Ethyl Ketone
5) Ethyl Acetate

What are the trends for total use, byproduct and releases to the environment for 1990 - 1995?

Reporting Year	Total Use	Byproduct	Release to the Env.
1990	876	108	20
1991	816	106	17
1992	766	103	15
1993	731	95	11
1994	828	96	10
1995	805	87	8
Normalized Percent Change 1990-1995	20% Reduction	30% Reduction	67% Reduction

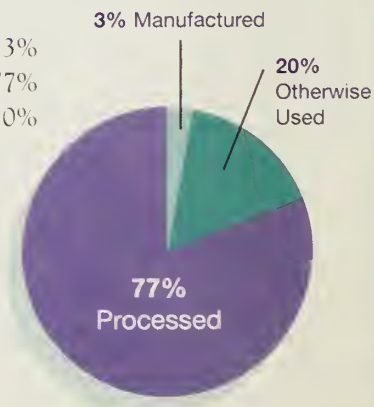
Quantities in millions of lbs., based on TURA Core Reportables.

What are the trends for reproductive toxins between 1990-1995?

	Actual % Change
Total Use	23% Reduction
Byproduct	34% Reduction
Releases to the Environment	69% Reduction

What are the firms doing with the chemicals that they use?

Manufactured	3%
Processed	77%
Otherwise Used (neither manufactured or processed)	20%



TUR at Cranston Print Works Company

As part of its commitment to continuous process improvement, Cranston Print Works Company of Webster has used toxics use reduction (TUR) to reduce environmental impact, improve occupational safety, and reduce operational costs. Implementation of in-process acid recycling, process control charting, and carbon dioxide treatment of wastewater has resulted in a 430,000 lb/year reduction in the use of acetic acid and the elimination of 2.66 million lb/year of sulfuric acid.

Cranston Print Works prepares, prints and finishes cotton and polyester/cotton blended fabrics that are later used to manufacture everything from pot holders to children's sheet sets to party dresses. In order to remain competitive and achieve the brilliant colors that its customers demand, Cranston uses special dyes that require an acid treatment within the printing process.

Environmental Engineer Mark O'Brien has implemented toxics use reduction at Cranston with great success. Early in the planning process, Mark called on the expertise of the Office of Technical Assistance to provide TUR suggestions that might work at Cranston. Later, Cranston Print Works opened its doors to the community and even its competitors as part of the Toxics Use Reduction Institute's Cleaner Technology Demonstration Sites Program. According to O'Brien, "Working with the state agencies under the TURA Program has been the most positive experience I have had with a government program since I started at Cranston twelve years ago."

Toxics Use Reduction Results

- Process improvements resulting from control charting have reduced annual acetic acid usage in the acid agers by more than 128,000 pounds.
- The automated feed system has dramatically reduced worker exposure to acetic acid.
- Implementation of the acid steam in-line recovery unit with the new acid ager has reduced Cranston's annual acetic acid usage by more than 302,000 pounds.
- Water discharge from the scrubber unit has decreased from 56 gal./min. to 15 gal./min. as a result of recirculation.
- The substitution of carbon dioxide for sulfuric acid in the treatment of alkaline wastewater has eliminated the annual use of 2.66 million pounds of sulfuric acid.
- Because of TUR planning and good engineering, Cranston has reduced its use of TUR chemicals by more than 3 million pounds per year since 1992.

Economic Results

- Due to implementation of the Tytronics acid recovery system, Cranston annually saves approximately $84,000 in acetic acid procurement costs and $200,000 in wastewater treatment costs.
- The capital expenditure for the Tytronics unit and the automated feed was approximately $18,000.
- Control charting used in the acid agers has resulted in the reduction of acetic acid procurement costs by more than $33,300 annually.
- The capital expenditure for the purchase and installation of the acid recycling system was $235,000.
- Substituting carbon dioxide for sulfuric acid in wastewater treatment has reduced procurement costs annually by at least $70,000 and compliance costs by more than $3,000.
- The capital expenditure for the purchase and installation of the carbon dioxide wastewater system was approximately $93,000.

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Environmental Engineer

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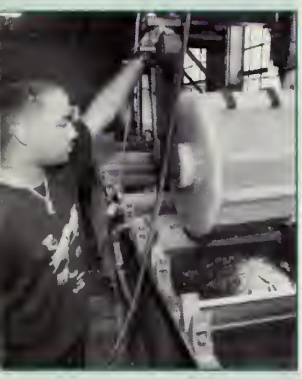
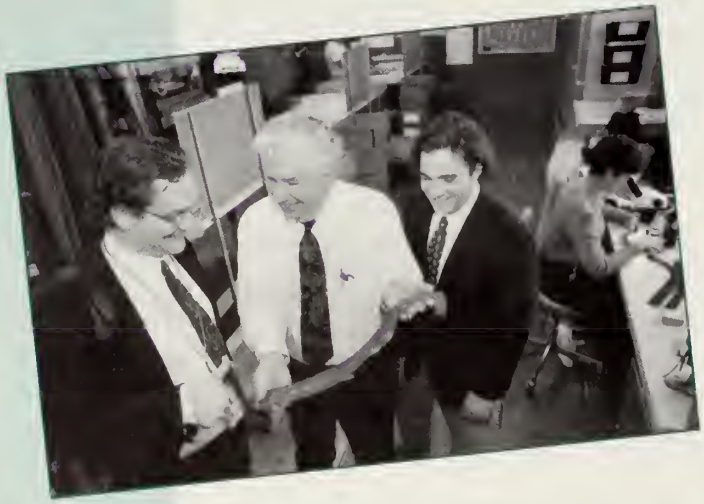
TUR at Acushnet Rubber Company

When ISO 14001 auditor, TUV America presented the final certification to Acushnet in December of 1996, it was the first in Massachusetts and only the fifth in the nation.



According to Jack Bailey, Director of Environment, Health and Safety at Acushnet Rubber Company, implementing toxics use reduction had impacts way beyond what he originally expected. While others are waiting to see what will happen with ISO 14001, the international environmental standard, Acushnet is making it work for them. Bailey, a trained Toxics Use Reduction Planner, led Acushnet's efforts to become the first company in Massachusetts to achieve ISO 14001 Certification.

Acushnet, which employs 850 people at two locations in New Bedford, designs and manufactures elastomeric products and high performance o-ring seals. Acushnet's customers include Ford, Chrysler, General Motors, Lexmark and Xerox. Jack Bailey, who had worked extensively with the TURA agencies already, attended an ISO 14001/TURA workshop organized by the Office of Technical Assistance and requested an intern from the Toxics Use Reduction Institute. By using the systems and data points established through TUR planning and reporting, along with the company's ISO 9001/QS-9000 quality management system, Acushnet Rubber Company was well on its way to conforming to the ISO 14001 standard.



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Over the years, Acushnet has reduced or eliminated its use of several toxic chemicals. Vapor degreasing has been completely replaced with an aqueous system and use of toxic solvents for mold release was replaced with a water-based spray. Workers everywhere in the plant have contributed to toxics use reduction success. One worker in the adhesive application area suggested parts be dipped in a vat of adhesive instead of sprayed. The project resulted in a by-product reduction of thousands of pounds per year and saved the company money as well.

Jack Bailey says, "We are going to make money doing this. We've already made many changes and have seen cost reductions." Achieving ISO 14001 certification is only the first step. According to Bailey, now comes the hard part: keeping it going all the time.

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TUR Assistance from OTA

The Office of Technical Assistance (OTA) offers direct, hands-on technical assistance to Massachusetts firms trying to implement toxics use reduction at their facilities. The office includes 20 technical assistance specialists organized into five regional teams in order to serve companies throughout the state. The OTA staff provide free, confidential consultations to firms without the threat of regulatory enforcement. Over the past five years OTA has made more than 1400 site visits at more than 600 facilities offering thousands of hours of technical assistance. In addition, OTA has sponsored nearly 250 events attracting more than 16,6000 participants.

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Collectively, the Office of Technical Assistance staff members have more than 300 years of experience working for private industry. Many of the staff members have earned advanced degrees in areas such as business, chemistry and chemical engineering. That experience and education has taught them that toxics use reduction strategies offer companies economic and competitive advantages as well as improved environmental performance.

Technical Services Director Bill McGowan, who came to OTA in 1991 from the Nashua Corporation where he had been a project engineer, says he was very familiar with the concept of TUR — the only difference was one of semantics.

"The Nashua Corporation had been doing pollution prevention and toxics use reduction for a long time, only we didn't call it that," he says. "Basically, we were trying to prevent waste and produce the highest yield at the lowest cost. We called it yield improvement, cost reduction, waste reduction."

Joe Paluzzi, a quality specialist and consulting engineer whose previous employers include Camp Dresser & McKee Inc. and Stone and Webster, says part of the satisfaction of his work at OTA comes from helping his colleagues and client companies understand the overlap between TUR and total quality principles. His work with the American Society for Quality Control (ASQC) resulted in ASQC establishing national and local sub-committees on pollution prevention, both of which Joe now chairs. At OTA, he has taken the lead in outreach to companies and other business organizations on the connection between the Organization for International Standardization's certification programs (ISO 9000, ISO 14000) and TURA planning. He says the key to successful outreach "is recognizing what people want and need and then developing a program that addresses those things."

For some staff members, despite years of experience and education, the rewards of working at OTA come from the continued opportunity to learn about new technologies and strategies for improving the environment.

John Flynn, a Ph.D. chemist from MIT who worked for 18 years at Raytheon, chose to join OTA rather than pursue opportunities in consulting or teaching. "I can keep on learning things technically here, and there's a very interesting variety," he says. "It's an opportunity to continue scientific endeavors and at the same time, focus on the environment. Working on projects that have a payback for the environment is very satisfying."

Rich Bizzozero agrees. Among the first staff members hired as OTA was getting established in 1991, he says "the OTA message" — that pollution can and should be prevented at the source — attracted him to the Office. "In the early days, we were pioneers, spreading the word of prevention," he says. "Now we've gone from being pioneers to trying to work the principles of TUR into regulations and mainstream business activities. It's very satisfying work."

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TUR at Kidde Fenwal

OTA staff suggested that the company investigate replacing its conventional coating operations setup with a state-of-the-art, computer-controlled coating application system with coatings that could be cured using ultra violet light (UV) technology.

In late 1994, Kidde Fenwal, a fire suppression equipment manufacturer in Ashland, sought assistance from the Massachusetts Office of Technical Assistance. Company engineers were looking for ways to make its coating operations more efficient and reduce emissions in the manufacture of automatic fire suppression systems and gas ignition controls. OTA staff suggested that the company investigate replacing its conventional coating operations setup with a state-of-the-art, computer-controlled coating application system with coatings that could be cured using ultra violet light (UV) technology. The old technology used a solvent based coating that relied on a high volatile organic compound (VOC) content to achieve curing through evaporation of the VOC's into the air. The new technology uses ultraviolet light to achieve curing without releasing VOC's into the air.

Kidde Fenwal managers followed up on OTA's recommendations, and subsequently installed a new system using solvent-less, UV curable coatings. The coatings are applied using a low pressure spray applicator with a program controlled pattern.

Annual savings were estimated at $300,000 in materials, labor, and energy, transportation, and regulatory compliance costs.

By the end of 1996, the company had achieved significant environmental and economic results from use of its new system, including:

- elimination of an entire day from its production process;
- 75% reduction in air emissions, allowing Kidde Fenwal to be reclassified by the state as a minor source of air emissions;
- 96% reduction in the amount of coating used per printed circuit board;
- elimination of the need to purchase and store on site 4,000 pounds of flammable solvents each year;
- elimination of 20 drums per year of hazardous waste;
- annual savings estimated at $300,000 in materials, labor, energy, transportation, and regulatory compliance costs.

The new system paid for itself in one year.

TUR Implementation at DEP

The Department of Environmental Protection is charged with ensuring that firms comply with the Toxics Use Reduction Act. During the first several years of the program DEP promulgated the TURA regulations, developed the documents for TURA planning and reporting, created compliance guidance documents, developed the TUR Planner licensing program and created the TUR data management system. In addition to working with the regulated community, the department also works closely with environmental and industry groups, the state legislature, federal environmental agencies and communities seeking to understand and utilize the value of the TURA Program.

DEP has also developed and maintains one of the most advanced, state data systems for toxic chemical information in the United States.

The DEP monitors corporate compliance with the Toxics Use Reduction Program through submittal of TUR reporting information, multimedia inspections and coordination with other state and federal agencies. During the last five years the department has conducted thousands of facility, multimedia inspections within companies that use, manufacture or store toxics substances. One component of multimedia inspections involves reviewing the Toxics Use Reduction Plan, which is kept on site at the facility and is not sent into the DEP. According to DEP inspector Martha Caldwell, many firms find that multimedia inspections are more efficient because everything is taken care of at once. At Lindberg Heat Treating in Worcester, plant engineer Martin Lee worked with DEP inspector Martha Caldwell when a strong ammonia odor caused concern among neighbors. Martha found Lindberg's environmental performance to be better than expected. According to Mr. Lee, "Through toxics use reduction efforts we were able to reduce our ammonia use while significantly increasing production." In most cases both the facility and the inspector have the same goal: to improve environmental performance.

According to DEP Program administrator Walter Hope, inspections and compliance reviews of reporting information have generated over 500 TURA-related enforcement actions. The Department has issued over $100,000 in penalties for the TURA violations. In addition, the DEP has created over a 1000 pages of guidance, forms and instructions that allow the regulated community to understand and comply with TURA. To complement the guidance information, the DEP has conducted over 100 events throughout the state to allow the regulated community access to TUR program regulators and compliance assistance.

The DEP has also developed and maintains one of the most advanced, state data systems for toxic chemical information in the United States. The TURA database contains information from over 150,000 toxic chemical documents and other toxics information from Massachusetts businesses. The information contained in the system is made available to the TURA program agencies, the public, communities and to the federal government through numerous analytical tools and the Internet. The TURA home page at DEP is one of the agency's most visited destinations for individuals and organizations, receiving over 200 inquiries each month.

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"Through toxics use reduction efforts we were able to reduce our ammonia use while significantly increasing production."

Martin Lee

Plant Engineer

TUR Research and Training at TURI

"Using industry professionals to help teach industry professionals is one of the most important and unique aspects of our TUR planning curriculum. We prepare the instructors with train-the-trainer programs and we find that people working in industry learn well from their peers."

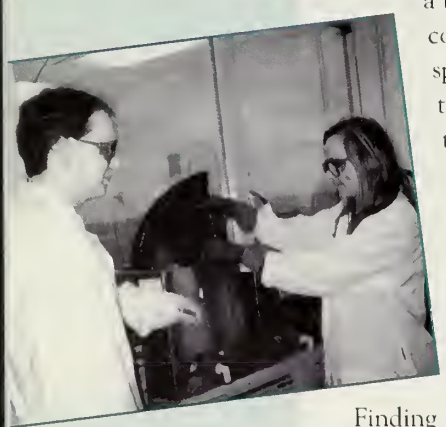
Jack Luskin

TURI Training Expert

The Toxics Use Reduction Institute is a multi-disciplinary research training and education center located at the University of Massachusetts Lowell. The Institute conducts and sponsors a number of research and training activities to promote toxics use reduction in Massachusetts industry. As well as conducting research and training activities in-house, the Institute has developed valuable relationships with industry, academia and community groups to enhance expertise and maximize program impact.

Cleaning has traditionally used large volumes of toxic solvents in Massachusetts. The Surface Cleaning Lab is here to help firms find less toxic substitutes that work.

When Carole LeBlanc and Jay Jankauskas come to work in the morning they never know what kind of dirty industrial parts they will find. Technical staff from Massachusetts firms bring dirty parts to TURI's Surface Cleaning Laboratory to find out if they can be adequately cleaned using environmentally improved cleaning systems. Carole and Jay work closely with plant personnel to develop a testing methodology and recommend a course of action that is appropriate to the specific needs of the firm. Using state of the art equipment and techniques, the lab then proceeds with testing and reports back to the firm. According to Lab Manager LeBlanc, "Many firms make a decision to purchase a new cleaning system based on our test results. That makes us careful to cover all the bases."



Finding information at TURI's Technology Transfer Center is not like sitting at a computer terminal in a huge research library surrounded by books and carrels. TTC Manager Janet Clark is proud of the fact that she and her associates can help make that important link between information and the people who can actually put it to work. The Institute staff are always available to help answer questions, find resources and offer suggestions. Although the center has a collection of more than 16,000 books plus CD-ROM and on line services, none of it is of any value until someone uses it. TTC staff work hard to be user friendly and to reach out to industry, responding to more than 1000 requests for information each year.

Chris Ford from Printed Circuits Corporation in Burlington has been teaching in TURI's Toxics Use Reduction Planner Course for several years now. According to TURI training expert Jack Luskin, "Using industry professionals to help teach industry professionals is one of the most important and unique aspects of our TUR planning curriculum. We prepare the instructors with train-the-trainer programs and we find that people working in industry learn well from their peers." Since 1992, TURI has offered over 25 Toxics Use Reduction Planner training classes to more than 658 people. This in-depth 48 hour training program provides a comprehensive background for individuals who will be doing toxics use reduction planning or wish to become certified by the state. This course, along with numerous continuing education offerings, provides a source of up-to-date information about toxics use reduction techniques, regulations, planning requirements and industry specific training.

As Massachusetts and the nation move into the future of toxics use reduction and pollution prevention, some of the Institute's policy research will help guide the way. Monica Becker has been working on an extensive project to evaluate progress under the Toxics Use Reduction Act from 1990 to 1996. The evaluation includes a survey of firms that have participated in the program and a cost benefit analysis. Results of the evaluation will be released in the Spring of 1997.

TUR Administration

The TURA Program is administered under a special Administrative Council made up of the directors of various state agencies including the Executive Office of Environmental Affairs, the Department of Environmental Protection, the Department of Public Health, the Department of Economic Development and the Department of Labor and Workforce Development.

The Administrative Council is advised by a broadly-based Advisory Board with representatives appointed from the state Attorney General's office, the Massachusetts Water Resources Authority, local wastewater authorities, both large and small businesses, statewide environmental organizations, organized labor, health policy organizations, and the general public.

In addition, a Science Advisory Board makes recommendations regarding a range of scientific issues including listing and delisting chemicals on the TURA Toxic or Hazardous Substance List. The Science Advisory Board is made up of scientists from around the state who have knowledge of and interest in the properties and use of toxic chemicals. Firms or individuals can petition the board to have a chemical delisted if they believe the use of the chemical poses no risk to workers, citizens or the environment. To date the Science Advisory Board has heard 11 petitions and delisted 8 chemicals.

Under specific conditions, the following chemicals have been delisted:

Nickel in alloy form	Chromium (III) oxide
Hydroquinone	Manganese in alloy form
Acetic Acid	Cobalt in alloy form
Chromium in alloy form	Copper in alloy form

As recognition of companies that have gone beyond the letter of the law in implementing TUR, the Administrative Council each year awards the Governors Award for Toxics Use Reduction. The sixteen companies that were considered for Governor's awards in FY96 collectively eliminated the use of 2.3 million pounds of toxic chemicals and saved 5.1 million dollars in the process.

FY 96 Governor's Award Recipients

GTE Government Systems
The Robbins Company
MWRA/MASCO Hospital Mercury Workgroup

The TURA Program is supported by revenue from a specially created Toxics Use Reduction Fund that was set up by the TURA law. Each year as firms file their annual reports to the DEP, they also pay a graduated fee that is deposited into the Fund. The resources accumulated in the Fund are then used to support the various TURA agencies. The table below presents the amount of money raised each year and deposited into the Fund and the amount that has been expended by each of the three operating agencies.

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TURA Revenues and Expenses by Year (in thousand dollars)*

	FY91	FY92	FY93	FY94	FY95	FY96 (budgeted)
Revenues	2,049	4,757	4,814	4,505	5,569	4,490
DEP Expenses	223	624	520	815	964	1,000
OTA Expenses	256	1,215	1,233	1,493	1,643	1,831
TURI Expenses	339	983	1,303	1,445	1,387	1,763

* Expenditures do not add up to revenues each year, because during various years funds were expended for purposes other than the TURA Program.

TUR In Firms

Jodie Siegel of TURI says that dry cleaners are often reluctant to change because they don't know if alternatives to perc actually work. Utopia has proved that they do.

This year the Toxics Use Reduction Institute has combined the Industry Matching Grants and the Cleaner Technology Demonstration Sites programs. The goal of the combined program is to provide companies with the opportunity to test and demonstrate new cleaner technologies as well as to showcase their accomplishments. For 1996-97, a total of $60,000 has been awarded to support five projects.

At Utopia Cleaners in Arlington you can drop off your clothes, come back in a couple of days, and they will be clean, pressed and looking good. But there is a difference between Utopia and other neighborhood cleaners: at Utopia they will not use perchloroethylene (perc) to clean your clothes. Utopia converted to a wet cleaning process and now uses water and detergents to clean clothes instead of perc, a suspected carcinogen. Last year, Utopia Cleaners opened its doors through the Demonstration Sites program to other cleaners who are interested in the wet cleaning process.

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1996-97 Matching Grants and Cleaner Technology Demonstration Sites Recipients

Leach & Garner Company, General Findings Division, North Attleboro
Ammonia Reduction for Heat Treat Furnace Atmospheres

Lockheed Martin Defense Systems, Pittsfield
Design for Environment (DfE) Workshops

Ocean Spray Cranberries, Inc., Marlboro
Elimination of Cooling Tower Chemical Additives

Parlex Corporation, Methuen
Innovations in Toxics Use Reduction in Printed Wiring Board Manufacture

Tri-Star Technologies Company, Inc., Methuen
Cupric Chloride Etch Regeneration

The goal of the combined program is to provide companies with the opportunity to test and demonstrate new cleaner technologies as well as to showcase their accomplishments.

TUR In the Community

The Toxics Use Reduction Networking program at TURI encourages community involvement in toxics use reduction through a series of grants offered to groups around the state. One of the most exciting grants for this year goes to the Smith Vocational & Agricultural High School, in Northampton. Not only will the school develop a curriculum to teach students about toxics use reduction, but they will actually implement toxics use reduction in the school's shops. According to the science teacher who will be running the program, "Employers are demanding more sophisticated skills of the school's graduates. This is one more tool we can offer our graduates to help them compete in the job market." For 1996-97 five grants have been awarded to foster TUR and municipal integration and six to foster TUR and community awareness.

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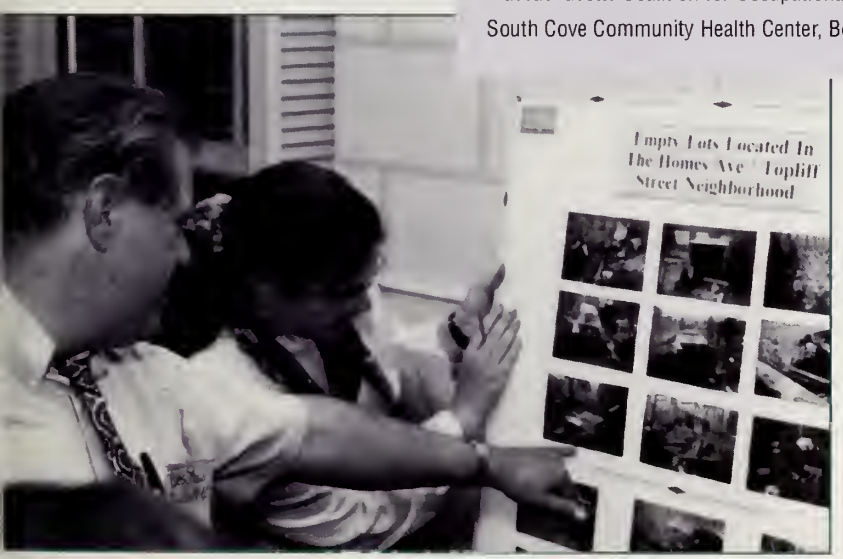
Recipients of TURN Grants for 1996-97

Municipal Integration Grants

Boston Police Department, District E-18, Boston, "TURN IT Around"
Massachusetts Fire District 14, Northborough, "Toxics and Hazardous Materials Use Reduction Project"
Center for Ecological Technology, Pittsfield, "TUR in DPWs and Boards of Health"
Northampton Board of Health, Northampton, "TUR at Smith Vocational & Agricultural High School"
Springfield LEPC, Springfield "Community Awareness Booklet"

Community Awareness Grants

Green Decade Coalition, Newton, "TUR begins at home"
John Snow Institute, Boston, "Building a Community Alliance for TUR in Lawrence Massachusetts"
Lawrence Grassroots Initiative, Lawrence, "TUR Education Project for Lawrence"
Massachusetts Alliance of Portuguese Speakers, Somerville, "MAPS TUR Awareness Project"
Massachusetts Coalition for Occupational Safety and Health, Boston, "Worker Based TUR Curriculum"
South Cove Community Health Center, Boston, "Project Health Asian Teens, Environmental Hazards"



For More information on the Massachusetts Toxics Use Reduction Program:

Executive Office of Environmental Affairs
Gina McCarthy, TURA Administrative Council Executive Director
100 Cambridge Street
Boston, Massachusetts 02202
(617) 727-9800 Ext. 214

Office of Technical Assistance for Toxics Use Reduction
Barbara Kelley, Director
100 Cambridge Street
Boston, Massachusetts 02202
(617) 727-3260 Ext. 680

Department of Environmental Protection
Bill Panos, TURA Program Director
One Winter Street
Boston, Massachusetts
(617) 574-6820

Toxics Use Reduction Institute
Kenneth Geiser, Director
University of Massachusetts Lowell
One University Avenue
Lowell, Massachusetts 01854
(508) 934-3275

Since 1990 the Massachusetts Toxics Use Reduction Program has reshaped the relationship between state environmental agencies and the Commonwealth's industries and promoted new ways to protect the environment and the economy. There has been a sharp decrease in this state's generation of hazardous waste and an impressive decline in the amount of toxic chemicals used in Massachusetts manufacturing. These reductions have occurred without substantial costs to industry and in many cases firms have realized operational savings.

The work is not complete. Only in 1998 will it be possible to assess whether the program has met the legislated goal of "50 percent reduction in toxic wastes through toxics reduction." More effort is needed to assure that toxics use reduction is the principle approach to environmental regulatory compliance. Yet, as this report has demonstrated, much has been accomplished in making Massachusetts a cleaner and safer place to live and work.

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